THE CLAIMS

Having thus set forth and disclosed the nature of this invention, what is claimed is:

1. A top-loading container for collecting, storing, and transporting bulk material, said container comprising:

a) sidewall means, a bottom portion, and a cover portion; said sidewall means defining a load-carrying receptacle and including an upwardly facing top peripheral edge section having an open top; and

b) sidewall connecting means for pivotally mounting said cover portion to said sidewall means at two pivot locations disposed outside of the receptacle; said sidewall connecting means being effective to freely move said cover portion independent of said top peripheral edge section between a closed top position and an open top position;

c) said sidewall connecting means including at least one connecting member and cover actuating means;

d) said sidewall connecting means being fixedly mounted at one end thereof to said cover portion, and said connecting member being pivotally connected to said sidewall means at the other end of said sidewall connecting means at a first of said pivot locations which are downwardly spaced from said peripheral edge section;

e) said cover actuating means including an upper end section and a lower end section; said upper end section being pivotally mounted to said connecting member at an upper pivot axis disposed at a first of said pivot locations, and said lower end section being pivotally mounted to said sidewall means at a lower pivot axis disposed at a second of said pivot locations; said lower pivot axis being spaced downwardly and outwardly from said upper pivot axis and outwardly said sidewall means;

f) said cover actuating means being effective to move between an extended position and

a retracted position wherein said cover portion is in said closed top position when said cover actuating means is in an extended position, and the cover portion is said open top position when said cover actuating means is in a retracted position.

2. The top-loading container as defined in claim 1 wherein

said sidewall means includes a pivot location housing means that projects inwardly along an inside surface of the receptacle, and

said first pivot location is laterally spaced inwardly with respect to an outside surface of the sidewall means within said pivot location housing means.

3. The top-loading container as defined in claim 1 wherein

said cover portion has an inner surface against which inner cover surface said bulk material is disposed when piled to a level above the top peripheral edge section of said container,

said cover actuating means is effective to produce a leveraged force to the cover portion so as to be effective to compress said piled bulk material disposed in said receptacle when said cover actuating means moves the cover portion from an open position to a closed position.

4. The top-loading container as defined in claim 3 wherein

said cover portion has an outer apron section extending along an outer free distal edge of a top cover section which is mounted to said sidewall connecting means along a cover connecting edge section that is opposite said outer apron section,

said outer apron section being inclined downwardly with respect to said top cover section at an angle sufficient to maintain the bulk material within the receptacle when the cover portion moves

to a closed top position thereby causing the bulk material to move toward said outer free distal edge of the top cover section.

5. The top-loading container as defined in claim 1 wherein

said sidewall means includes a planar sidewall portion,

said sidewall connecting means includes at least two connecting members laterally spaced along said planar sidewall portion, and

said cover actuating means includes a cover actuation mechanism connected at one end thereof to each said connecting member, and connected at the other end thereof to said lower pivot axis which is spaced outwardly from said planar sidewall portion.

6. The top-loading container as defined in claim 5 wherein

said sidewall means includes a plurality of planar sidewall portions, and

the sidewall connecting means is located along one of said planar sidewall portions.

7. The top-loading container as defined in claim 6 wherein

said cover portion includes an inner cover surface that becomes separated a spaced distance from the top edge section to form a gap extending the length of said planar sidewall portion when the cover portion is in an open top position to receive bulk material into said receptacle,

barrier means spaced inwardly from said planar sidewall portion for deflecting bulk material into the receptacle that forcefully impinges against the inner cover surface from a location outside the container,

said barrier means extending downwardly from said inner cover surface by an amount

sufficient to preclude the discharge of bulk material through the spaced distance of the gap along said length of said planar sidewall portion when the bulk material is directed into said receptacle.

8. The top-loading container as defined in claim 7 wherein

said barrier means is fixedly attached to and extending downwardly from the inner cover surface.

9. The top-loading container as defined in claim 7 wherein

said barrier means is pivotally and slidably attached along an upper side edge thereof to the inner cover surface at a location which is inwardly spaced from said top edge section of said planar sidewall portion,

said barrier means extending downwardly from the inner cover surface and being pivotally attached along a lower side edge thereof to said top edge section of said planar sidewall portion.

10. The top-loading container as defined in claim 9 wherein

said barrier means includes hinge means that pivotally couples said lower side edge of the barrier means to the top edge section of said sidewall portion.

11. A top-loading container for collecting, storing, and transporting bulk material, said container comprising:

a) sidewall means defining a load-carrying receptacle and including an upwardly facing top peripheral edge section having an open top,

b) a cover portion mounted to freely move independently of said top peripheral edge section to uncover and cover the open top of the load-carrying receptacle, and

c) actuating means for lifting the cover portion upwardly and freely out of contact with and away from the top peripheral edge section,

d) said cover portion and said actuating means each being pivotally mounted to said sidewall means outside of the receptacle and at pivot locations downwardly spaced from the top peripheral edge section for freely moving the cover portion between an open top position out of contact with the top peripheral edge section and a closed top position when in contact with the top peripheral edge section.

12. The container as defined in claim 11 wherein

said cover portion includes a downwardly extending section having a distal end portion pivotally connected at a cover pivot location downwardly spaced from said top peripheral edge section,

said actuating means having first and second end sections with said first end section pivotally mounted to said downwardly extending section of the cover portion at an upper actuating pivot axis, and said second end section pivotally mounted at a lower actuating pivot axis that is spaced downwardly from said top peripheral edge section.

13. The container as defined in claim 12 wherein

said distal end portion of said downwardly extending section includes at least one elongated connecting member, and

said lower actuating pivot axis of the second end section of the actuating means is spaced downwardly from said cover pivot location for said elongated connecting member.

14. The container as defined in claim 12 wherein

said distal end portion of said downwardly extending section includes bracket means rigidly connected to a cover section of said cover portion, and at least one elongated connecting member rigidly connected at one end thereof to said bracket means,

said elongated connecting member is pivotally connected at the other end thereof to a cover pivot axis disposed at said cover pivot location for said downwardly extending section,

said upper actuating pivot axis of the actuating means is disposed at an intermediate location between the cover section and said cover pivot location of said downwardly extending section, and

said lower actuating pivot axis of the actuating means is spaced downwardly from said cover pivot location for said downwardly extending elongated connecting member.

15. The container as defined in claim 12 wherein

said cover pivot location of said downwardly extending section is disposed in a first vertically disposed plane, and

said lower actuating pivot axis of the actuating means is disposed in a second vertically disposed plane that is parallel to the first vertically disposed plane, and laterally spaced outwardly from said sidewall means and said first vertically disposed plane.

16. The container as defined in claim 11 wherein

said actuating means is effective to move between an extended position and a retracted position wherein said cover portion is in said closed top position when said actuating means is in an extended position, and said cover portion is an open top position when said cover actuating means is in a retracted position.

17. The container as defined in claim 16 wherein

said actuating means includes hydraulically driven piston means to effect said movement between said extended and retracted positions.

18. The container as defined in claim 11 wherein

sealing means is disposed between said cover portion and said upwardly facing top peripheral edge section when said cover portion is in said closed top position.

19. A top-loading container assembly for collecting, storing, and transporting bulk materials, said container assembly comprising:

a) a container including sidewall means for defining a load-carrying receptacle and including an upwardly facing top peripheral edge section having an open top,

b) a cover portion mounted to freely move independently of said top peripheral edge section to uncover and cover the open top of the load-carrying receptacle,

c) mobile base means for removably supporting said container so that the container is movable from a transport position to a dumping position for discharging contents of the receptacle, and

d) means for lifting the cover portion upwardly and freely out of contact with and away from the top peripheral edge section of the container so as to be able to remove the container from the base means,

e) said means for lifting the cover portion including a downwardly extending section having a lower end pivotally connected to said base means at a cover pivot location downwardly spaced from said top peripheral edge section of said container, and

f) actuating means including first and second end sections with said first end section pivotally mounted to said downwardly extending section at an upper actuating pivot axis, and said second end section pivotally mounted to said base means at a lower actuating pivot axis for freely moving said lifting means for moving the cover portion between an open top position out of contact with the top peripheral edge section and a closed top position when in contact with the top peripheral edge section,

g) said cover pivot location of said downwardly extending section is disposed in a first vertically disposed plane, and

h) said lower actuating pivot axis of the actuating means is disposed in a second vertically disposed plane that is parallel to the first vertically disposed plane, and outwardly laterally spaced from said sidewall means and said first vertically disposed plane.

20. The container assembly as defined in claim 19 wherein

an upper end of said downwardly extending section includes means for holding said cover portion while moving the cover portion upwardly and freely out of contact with and away from the top peripheral edge section of the container.

21. The container assembly as defined in claim 19 wherein

said mobile base means includes a structural configuration for supporting said container on a wagon, flat bed vehicle, trailer, dump truck, semitrailer, or railroad car.

22. The container assembly as defined in claim 19 wherein

said cover portion includes said downwardly extending section having a distal end portion pivotally connected to said base means at said cover pivot location,

said first end section of said actuating means being pivotally mounted to said distal end portion at said upper actuating pivot axis, and said second end section of said actuating means being pivotally mounted at said lower actuating pivot axis.

23. The container assembly as defined in claim 22 wherein

said downwardly extending section includes bracket means rigidly connected to a cover section of said cover portion, and at least one elongated connecting member rigidly connected at one end thereof to said bracket means for forming said distal end portion,

said elongated connecting member is pivotally connected at the other end thereof to a cover pivot axis disposed at said cover pivot location for said downwardly extending section,

said upper actuating pivot axis of the actuating means is disposed at an intermediate location between the cover section and said cover pivot location of said downwardly extending section, and

said lower actuating pivot axis of the actuating means is spaced downwardly from said cover pivot location for said downwardly extending elongated connecting member.

24. The container assembly as defined in claim 19 wherein

said actuating means is effective to move between an extended position and a retracted position wherein said cover portion is in said closed top position when said actuating means is in an extended position, and said cover portion is an open top position when said cover actuating means is in a retracted position.

25. The container assembly as defined in claim 24 wherein

said cover actuating means includes hydraulically operated piston means.

26. The container assembly as defined in claim 19 wherein

sealing means is disposed between said cover portion and said upwardly facing top peripheral edge section for preventing passage of material in or out of said receptacle between the cover portion and the top peripheral edge section when said cover portion is in said closed top position.

27. A mobile top-loading container assembly for collecting, storing, and transporting bulk material, said container assembly comprising:

a) a container including sidewall means, a bottom portion, and a cover portion; said sidewall means defining a load-carrying receptacle and including an upwardly facing top peripheral edge section having an open top; and

b) sidewall connecting means for pivotally mounting said cover portion to said sidewall means at two pivot locations disposed outside of the receptacle;

c) said sidewall connecting means including at least one connecting member and cover actuating means, and being effective to freely move said cover portion independent of said top peripheral edge section between a closed top position and an open top position;

d) said sidewall connecting means being fixedly mounted at one end thereof to said cover portion, and said connecting member being pivotally connected to said sidewall means at the other end of said sidewall connecting means at a first of said pivot locations which are downwardly spaced from said peripheral edge section;

e) said cover actuating means including an upper end section and a lower end section; said upper end section being pivotally mounted to said connecting member at an upper pivot axis disposed at a first of said pivot locations, and said lower end section being pivotally mounted to said sidewall means at a lower pivot axis disposed at a second of said pivot locations; said lower pivot axis being spaced downwardly and outwardly from said upper pivot axis and said sidewall means;

f) said cover actuating means being effective to move between an extended position and a retracted position wherein said cover portion is in said closed top position when said cover actuating means is in an extended position, and the cover portion is said open top position when said cover actuating means is in a retracted position; and

g) mobile base means for supporting said container along said bottom portion so that the container is movable from a bulk material collecting and transport position to an unloading position.

28. The container assembly as defined in claim 27 wherein

said mobile base means includes a structural configuration comprising a wagon, flat bed vehicle, trailer, dump truck, semitrailer, or railroad car.

29. The container assembly as defined in claim 27 wherein

said bottom portion including means for discharging bulk material contents from the receptacle at said unloading position.

30. The container assembly as defined in claim 27 wherein

said sidewall means includes a pivot location housing means that projects inwardly along an inside surface of the receptacle, and

said first pivot location is laterally spaced inwardly with respect to an outside surface of the sidewall means within said pivot location housing means.

31. The container assembly as defined in claim 27 wherein

said cover portion has an inner surface against which inner cover surface said bulk material is

disposed when piled to a level above the top peripheral edge section of said container,

said cover actuating means produces a leveraged force in an amount sufficient to compress said piled bulk material disposed in said receptacle when said cover actuating means moves the cover portion from an open position to a closed position.

32. The container assembly as defined in claim 31 wherein

said cover portion has an outer apron section extending along an outer free distal edge of a top cover section which is mounted to said sidewall connecting means along a cover connecting edge section that is opposite said outer apron section,

said outer apron section being inclined downwardly with respect to said top cover section, and having a breadth and being disposed at an angle sufficient to maintain the bulk material within the receptacle when the cover portion causes the bulk material to move toward said outer free distal edge of the top cover section as it moves to a closed top position.

33. The container assembly as defined in claim 27 wherein

said sidewall means includes a planar sidewall portion,

said sidewall connecting means includes at least two connecting members laterally spaced along said planar sidewall portion, and

said cover actuating means includes a cover actuation mechanism connected at one end thereof to each said connecting member, and connected at the other end thereof to said lower pivot axis which is spaced outwardly from said planar sidewall portion.

34. The container assembly as defined in claim 33 wherein

said sidewall means includes a plurality of planar sidewall portions, and

the sidewall connecting means is located along one of said planar sidewall portions.

35. The container assembly as defined in claim 34 wherein

said cover portion includes an inner cover surface that becomes separated a spaced distance from the top edge section to form a gap extending the length of said planar sidewall portion when the cover portion is in an open top position to receive bulk material into said receptacle,

barrier means spaced inwardly from said planar sidewall portion for deflecting bulk material into the receptacle that forcefully impinges against the inner cover surface from a location outside the container,

said barrier means extending downwardly from said inner cover surface by an amount sufficient to preclude the discharge of bulk material through the spaced distance of the gap along said length of said planar sidewall portion when the bulk material is directed into said receptacle.

36. The container assembly as defined in claim 35 wherein

said barrier means is fixedly attached to and extending downwardly from the inner cover surface.

37. The container assembly as defined in claim 35 wherein

said barrier means is pivotally and slidably attached along an upper side edge thereof to the inner cover surface at a location which is inwardly spaced from said top edge section of said planar sidewall portion,

said barrier means extending downwardly from the inner cover surface and being pivotally

attached along a lower side edge thereof to said top edge section of said planar sidewall portion.

38. The container assembly as defined in claim 37 wherein

said barrier means includes hinge means that pivotally couples said lower side edge of the barrier means to the top edge section of said sidewall portion.

39. The container assembly as defined in claim 27 wherein

said cover portion includes a downwardly extending section having a distal end portion pivotally connected at a cover pivot location downwardly spaced from said top peripheral edge section,

said cover actuating means having first and second end sections with said first end section pivotally mounted to said downwardly extending section of the cover portion at an upper actuating pivot axis, and said second end section pivotally mounted at a lower actuating pivot axis that is spaced downwardly from said top peripheral edge section.

40. The container assembly as defined in claim 39 wherein

said distal end portion of said downwardly extending section includes at least one elongated connecting member, and

said lower actuating pivot axis of the second end section of the cover actuating means is spaced downwardly from said cover pivot location for said elongated connecting member.

41. The container assembly as defined in claim 39 wherein

said distal end portion of said downwardly extending section includes bracket means rigidly

connected to a cover section of said cover portion, and at least one elongated connecting member rigidly connected at one end thereof to said bracket means,

said elongated connecting member is pivotally connected at the other end thereof to a cover pivot axis disposed at said cover pivot location for said downwardly extending section,

said upper actuating pivot axis of the cover actuating means is disposed at an intermediate location between the cover section and said cover pivot location of said downwardly extending section, and

said lower actuating pivot axis of the cover actuating means is spaced downwardly from said cover pivot location for said downwardly extending elongated connecting member.

42. The container assembly as defined in claim 39 wherein

said cover pivot location of said downwardly extending section is disposed in a first vertically disposed plane, and

said lower actuating pivot axis of the cover actuating means is disposed in a second vertically disposed plane that is parallel to the first vertically disposed plane, and laterally spaced outwardly from said sidewall means and said first vertically disposed plane.

43. The container assembly as defined in claim 27 wherein

said cover actuating means is effective to move between an extended position and a retracted position wherein said cover portion is in said closed top position when said cover actuating means is in an extended position, and said cover portion is an open top position when said cover actuating means is in a retracted position.

44. The container assembly as defined in claim 43 wherein

said cover actuating means includes hydraulically driven piston means to effect said movement between said extended and retracted positions.

45. The container assembly as defined in claim 27 wherein

sealing means is disposed between said cover portion and said upwardly facing top peripheral edge section when said cover portion is in said closed top position.

46. The container assembly as defined in claim 27 wherein

said sidewall means comprises a plurality of planar sidewall portions including container end planar sidewall portions, and

said cover portion includes at least one end wall means for preventing bulk material from being discharged over a container end planar sidewall portion of the sidewall means while the receptacle is being loaded with the bulk material from a loading location outside the receptacle and disposed a spaced distance away from said sidewall means.